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out any real genetic relationships with any known subsequent fauna; that such resemblances as have been shown are merely primitive or archaic, due to heredity from common ancestors. The truth probably lies between the two views.

VIII. *Physiology*

A. J. CARLSON: *Some New Observations on the Physiology of the Stomach in Man.*

A. The relation of the stomach to the sensation of hunger. (1) Peripheral, and central control of the hunger mechanism. (2) Chemical control of the hunger mechanism. (3) The change in the hunger mechanism with age.

B. The relation of the stomach to appetite. (1) The qualitative difference between hunger and appetite.

C. The secretion of gastric juice in man. (1) The chemistry of normal human gastric juice. (2) Factors influencing the rate and quantity of the secretion. (3) The action of tonics or bitters on (a) the hunger mechanism; (b) on the secretion of gastric juice.

SHIRO TASHIRO: *On the Nature of Nerve Impulse.*

Lack of fatigue, as measured by ordinary methods, and absence of heat production during continued stimulation in the nerve, have driven some physiologists to consider that the nerve impulse passes through the fiber without consuming any material. With new apparatus which measures as little CO_2 as 0.0000001 gm., we have demonstrated that a living nerve gives off a definite amount of CO_2 and that when it is stimulated, this CO_2 production is increased. These new facts may be interpreted in two different ways. Some believe that a living nerve should be metabolically active like any other tissue, but that the chemical change is not identical with the nerve impulse, but is the result of functional activity. Others consider that the progress of chemical change itself constitutes the nerve impulse. This latter view is supported by some recent results, which show that CO_2 production from the resting nerve under different conditions is parallel to the physiological state of the nerve; that the normal nerve impulse passes toward a point of lower CO_2 production; that the rate of nerve impulse is closely connected with the rate of CO_2 production and that factors which influence the rate of nerve impulse equally influence the metabolism of the resting nerve. The nerve impulse is probably a propagated chemical change, the propagation being due to restoring the equilibrium which was disturbed first at the point of stimulus.

THE PHILADELPHIA MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE sixty-sixth meeting of the American Association for the Advancement of Science and of the affiliated scientific societies will be held in Philadelphia beginning on December 28. We hope to publish next week full details of the preliminary program. It may now be noted that while the council of the association and some of its sections and affiliated societies will meet on Monday morning, the first general session will be held in the University gymnasium on Monday evening. The retiring president, Dr. Edmund B. Wilson, of Columbia University, will introduce the president of the meeting Dr. Charles W. Eliot, of Harvard University, and will give the annual address entitled "Some Aspects of Progress in Modern Zoology." After the meeting there will be a reception in the University Museum by Provost and Mrs. Smith.

The meetings of the sections and of most of the affiliated societies will be in the buildings of the laboratories of the University of Pennsylvania. Luncheon will be served daily in the gymnasium and all those in attendance are cordially invited to be present. The Houston Club is the headquarters at the University of Pennsylvania, and the Hotel Adelphia is the hotel headquarters.

An interesting event of the meeting will be the first session of the newly established section of agriculture, which will meet on December 30. The program will be a modest one, as becomes a new section, and will be specialized to cover some of the questions surrounding the business side of agriculture and the life of people living under it, rather than the strictly production phases. The address of the vice-president of the section, Dr. L. H. Bailey, late director of the College of Agriculture at Cornell University, will deal with "The Place of Research and of Publicity in the Forthcoming Country Life Development." The other main feature of the program will be a symposium on the general subject of "The Field of Rural Economics." Special phases of the subject will be presented by speakers invited to discuss

them, and there will be opportunity for somewhat general consideration. The importance of the economic aspects of agriculture and of rural affairs, and the broad field which the subject opens up, suggest this as an appropriate topic for the new section, and it is hoped that it will prove of general interest.

SCIENTIFIC NOTES AND NEWS

CHARLES SEDGWICK MINOT, James Stillman professor of comparative anatomy in the Harvard Medical School, eminent for his contributions to embryology and biology and for public service in science, died at his country home near Boston on November 19, at the age of sixty-two years.

THE gold medal of the Hayden Memorial Geological Award was presented to Dr. Henry Fairfield Osborn, in recognition of his paleontological studies, at a special meeting of the Academy of Natural Sciences of Philadelphia, on November 24. The presentation address was made by the president of the academy, Dr. Samuel G. Dixon.

ONE of the royal gold medals of the Royal Society, has been awarded to Professor Ernest William Brown, Sc.D., F.R.S., of Yale University, in recognition of his investigations in mathematical astronomy.

THE honorary degree of doctor of science was conferred on November 19 by Brown University upon Professor William H. Bragg, of the University of Leeds, before the corporation and faculty of the university in special convocation. Following the conferring of the degree Professor Bragg delivered the last of four lectures on "X-rays and Crystals," which he has been giving as the first of the anniversary lectures to celebrate the one hundred and fiftieth anniversary of Brown University.

THE John Fritz Medal will this year be awarded to Mr. John Edson Sweet, of Syracuse. Mr. Sweet was one of the founders of the American Society of Mechanical Engineers and one of its early presidents.

AT its last meeting the Rumford committee of the American Academy of Arts and Sciences made the following appropriations in

aid of researches on light and heat: to Professor P. W. Bridgman, of Harvard University, \$150 in addition to prior grants in aid of his researches on thermal effects at high pressures; to Professor Frederick A. Saunders, of Vassar College, \$100 in aid of his research on the spectra of metallic vapors; to Professor Frederick Palmer, Jr., of Haverford College, in aid of his research on the properties of light of extremely short wave-lengths, \$200; to Professor Henry Crew, of Northwestern University, in aid of his research on the specific heat of liquids, \$200.

THE annual public address of the Philadelphia meeting of the Entomological Society of America will be given on Wednesday evening, December 30, in the rooms of the Academy of Natural Science, by Professor Stephen Alfred Forbes, of the University of Illinois and State Entomologist. His subject will be "The Ecological Foundations of Applied Entomology." At the same meeting Dr. Henry Skinner at the request of the executive committee of the society will present "A History of the Entomological Society of America."

THE anniversary meeting and reception of the New York Academy of Medicine took place on November 19. The anniversary discourse, entitled "Some of the Relations of the Profession of Medicine to Municipal Government" was delivered by the Hon. George McAneny, president of the board of aldermen of New York City.

M. BOUTROUX, professor in the University of Paris, has accepted an invitation of the British Academy to deliver the first of the recently endowed annual philosophical lectures. His subject will be "Certitude et Verité," and the lecture will probably be delivered early in December.

WORD has been received from Dr. W. C. Farabee, leader of the University of Pennsylvania's South American expedition, that he had just returned from a second successful trip up the Amazon. The party traveled some four thousand miles and returned with many valuable collections.